

WHAT IS CLAIMED IS:

1. A system for authenticating a client comprising:
an authenticator capable of sending, to the client, a set of at least one label
identifying at least one element of an authentication matrix, the authentication matrix
5 including a plurality of elements, each element capable of being identified by a label,
wherein the authenticator is capable of receiving a passcode from the client formulated
based upon the at least one element identified by the received set of at least one label, and
wherein the authenticator is capable of authenticating the client based upon the
formulated passcode.
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2. A system according to Claim 1, wherein the authenticator is capable of
sending a set of at least one label, receiving a formulated passcode and authenticating the
client a plurality of times, and wherein the authenticator is capable of sending each set of
at least one label such that the sent set of at least one label differs from each previously
15 sent set of at least one label.
3. A system according to Claim 1, wherein the authenticator is capable of
communicating with a passcode generator, wherein the passcode generator is capable of
generating a passcode based upon at least one element selected from the authentication
20 matrix, wherein the authenticator is capable of sending a set of at least one label
identifying the selected at least one element, and wherein the authenticator is capable of
authenticating the client further based upon the generated passcode.
4. A system according to Claim 3, wherein the authenticator includes a
25 database capable of storing an authentication matrix, wherein the authenticator is capable
of providing an authentication matrix to the client, wherein the passcode generator is
capable of generating a passcode based upon at least one element selected from the
authentication matrix stored in the database, and wherein the authenticator is capable of
receiving a passcode formulated based upon at least one element of the authentication
30 matrix provided to the client corresponding to the at least one element selected from the
authentication matrix stored in the database.

5. A system according to Claim 4, wherein the database of the authenticator is capable of storing a plurality of authentication matrices, each authentication matrix associated with a different client, wherein the authenticator is capable of providing, to the client being authenticated, an authentication matrix associated with the respective client, and wherein the passcode generator is capable of generating a passcode based upon at least one element selected from the authentication matrix stored in the database and associated with the respective client.

6. A system according to Claim 5, wherein the authenticator is capable of receiving at least one piece of identifying information associated with the client being authenticated, and thereafter identifying, from the plurality of authentication matrices stored in the database, the authentication matrix associated with the client being authenticated based upon the at least one piece of identifying information, and wherein the passcode generator is capable of generating a passcode based upon at least one element selected from the identified authentication matrix.

7. A system according to Claim 3, wherein the passcode generator is capable of generating a passcode further based upon a personal identification number (PIN) associated with the client, and wherein the authenticator is capable of receiving a passcode formulated further based upon the PIN.

8. A system according to Claim 7, wherein the passcode generator is capable of generating a passcode including at least one element selected from the authentication matrix and the PIN in a predefined position with respect to the selected at least one element, wherein the authenticator is capable of receiving a passcode formulated to include the identified at least one element and the PIN in the predefined position with respect to the identified at least one element, and wherein the authenticator is capable of authenticating the client by identifying a match between the generated passcode and the formulated passcode.

9. A system comprising:

a client capable of receiving a set of at least one label identifying at least one element of an authentication matrix, the authentication matrix including a plurality of elements, each element capable of being identified by a label, wherein the client is
5 capable of formulating a passcode based upon the at least one element identified by the received set of at least one label such that the client is capable of being authenticated based upon the formulated passcode.

10. A system according to Claim 9, wherein the client is capable of receiving
10 the set of at least one label and formulating a passcode a plurality of times such that the client is capable of being authenticated a plurality of times, and wherein each set of at least one label received by the client differs from each set of at least one label previously received by the client.

15 11. A system according to Claim 9, wherein the client is capable of receiving a set of at least one label identifying at least one element selected from the authentication matrix during generation of a passcode, and wherein the client is capable of formulating the passcode such that the client is capable of being authenticated further based upon the generated passcode.

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12. A system according to Claim 11, wherein the client is capable of being provided with an authentication matrix from an authenticator capable of storing an authentication matrix, wherein the client is capable of receiving a set of at least one label identifying at least one element selected from the authentication matrix stored by the
25 authenticator, and wherein the client is capable of formulating a passcode based upon at least one element of the authentication matrix provided to the client corresponding to the at least one element selected from the authentication matrix stored by the authenticator.

13. A system according to Claim 12, wherein the client is capable of being
30 provided with an authentication matrix associated with the respective client from an authenticator capable of storing a plurality of authentication matrices, each authentication

matrix associated with a different client, and wherein the client is capable of receiving a set of at least one label identifying at least one element selected from the authentication matrix stored by the authenticator and associated with the respective client.

5 14. A system according to Claim 13, wherein the client is capable of sending the authenticator at least one piece of identifying information associated with the respective client such that the authenticator is capable of identifying, from the plurality of authentication matrices, the authentication matrix associated with the respective client based upon the at least one piece of identifying information, and wherein the client is
10 capable of receiving a set of at least one label identifying at least one element selected from the identified authentication matrix.

 15. A system according to Claim 11, wherein the client is capable of receiving a set of at least one label identifying at least one element selected from the authentication
15 matrix during generation of a passcode based upon a personal identification number (PIN) associated with the client, and wherein the client is capable of formulating a passcode further based upon the PIN.

 16. A system according to Claim 15, wherein the client is capable of receiving
20 a set of at least one label identifying at least one element selected from the authentication matrix during generation of a passcode including at least one element selected from the authentication matrix and the PIN in a predefined position with respect to the selected at least one element, wherein the client is capable of formulating a passcode including the identified at least one element and the PIN in the predefined position with respect to the
25 identified at least one element such that the client is capable of being authenticated by identifying a match between the generated passcode and the formulated passcode.

 17. A method of authenticating a client comprising:
 receiving a set of at least one label identifying at least one element of an
30 authentication matrix, the authentication matrix including a plurality of elements, each element capable of being identified by a label;

formulating a passcode based upon the at least one element identified by the received set of at least one label; and
authenticating the client based upon the formulated passcode.

5 18. A method according to Claim 17, wherein receiving a set of at least one label, formulating a passcode and authenticating the client occur a plurality of times, and wherein each received set of at least one label differs from each previously received set of at least one label.

10 19. A method according to Claim 17 further comprising:
generating a passcode based upon at least one element selected from the authentication matrix,
wherein receiving a set of at least one label comprises receiving a set of at least one label identifying the selected at least one element, and
15 wherein authenticating the client comprises authenticating the client further based upon the generated passcode.

20. A method according to Claim 19 further comprising:
providing an authentication matrix to an authenticator, and providing an
20 authentication matrix to the client,
wherein generating a passcode comprises generating a passcode based upon at least one element selected from the authentication matrix provided to the authenticator, and
wherein formulating a passcode comprises formulating a passcode based upon at
25 least one element of the authentication matrix provided to the client corresponding to the at least one element selected from the authentication matrix provided to the authenticator.

21. A method according to Claim 20, wherein providing an authentication matrix to an authenticator comprises providing a plurality of authentication matrices to an
30 authenticator, each authentication matrix associated with a different client, wherein

providing an authentication matrix to the client comprises providing, to the client being authenticated, an authentication matrix associated with the respective client, and

wherein generating a passcode comprises generating a passcode based upon at least one element selected from the authentication matrix provided to the authenticator and associated with the respective client.

22. A method according to Claim 21 further comprising:

receiving at least one piece of identifying information associated with the client being authenticated; and

identifying, from the plurality of authentication matrices, the authentication matrix associated with the client being authenticated based upon the at least one piece of identifying information,

wherein generating a passcode comprises generating a passcode based upon at least one element selected from the identified authentication matrix.

23. A method according to Claim 19, wherein generating a passcode comprises generating a passcode further based upon a personal identification number (PIN) associated with the client, and wherein formulating a passcode comprises formulating a passcode further based upon the PIN.

24. A method according to Claim 23, wherein generating a passcode comprises generating a passcode including at least one element selected from the authentication matrix and the PIN in a predefined position with respect to the selected at least one element, wherein formulating a passcode comprises formulating a passcode including the identified at least one element and the PIN in the predefined position with respect to the identified at least one element, and wherein authenticating the client comprises identifying a match between the generated passcode and the formulated passcode.

25. A computer program product for authenticating a client, the computer program product comprising at least one computer-readable storage medium having

computer-readable program code portions stored therein, the computer-readable program code portions comprising:

a first executable portion for receiving a set of at least one label identifying at least one element of an authentication matrix, the authentication matrix including a plurality of elements, each element capable of being identified by a label;

a second executable portion for formulating a passcode based upon the at least one element identified by the received set of at least one label; and

a third executable portion for authenticating the client based upon the formulated passcode.

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26. A computer program product according to Claim 25, wherein the first, second and third executable portions are adapted to receive a set of at least one label, formulate a passcode and authenticate the client, respectively, a plurality of times, and wherein each set of at least one label received by the first executable portion differs from each set of at least one label previously received by the first executable portion.

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27. A computer program product according to Claim 25 further comprising:
a fourth executable portion for generating a passcode based upon at least one element selected from the authentication matrix,

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wherein the first executable portion is adapted to receive a set of at least one label identifying the selected at least one element, and

wherein the third executable portion is adapted to authenticate the client further based upon the generated passcode.

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28. A computer program product according to Claim 27 further comprising:
a fifth executable portion for providing an authentication matrix to an authenticator, and providing an authentication matrix to the client,

wherein the fourth executable portion is adapted to generate a passcode based upon at least one element selected from the authentication matrix provided to the

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authenticator, and

wherein the second executable portion is adapted to formulate a passcode based upon at least one element of the authentication matrix provided to the client corresponding to the at least one element selected from the authentication matrix provided to the authenticator.

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29. A computer program product according to Claim 28, wherein the fifth executable portion is adapted to provide a plurality of authentication matrices to the authenticator, each authentication matrix associated with a different client, wherein the fifth executable portion is also adapted to provide, to the client being authenticated, an authentication matrix associated with the respective client, and

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wherein the fourth executable portion is adapted to generate a passcode based upon at least one element selected from the authentication matrix provided to the authenticator and associated with the respective client.

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30. A computer program product according to Claim 29 further comprising: a sixth executable portion for receiving at least one piece of identifying information associated with the client being authenticated; and

a seventh executable portion for identifying, from the plurality of authentication matrices, the authentication matrix associated with the client being authenticated based upon the at least one piece of identifying information,

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wherein the fourth executable portion is adapted to generate a passcode based upon at least one element selected from the identified authentication matrix.

31. A computer program product according to Claim 27, wherein the fourth executable portion is adapted to generate a passcode further based upon a personal identification number (PIN) associated with the client, and wherein the second executable portion is adapted to formulate a passcode further based upon the PIN.

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32. A computer program product according to Claim 31, wherein the fourth executable portion is adapted to generate a passcode including at least one element selected from the authentication matrix and the PIN in a predefined position with respect

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to the selected at least one element, wherein the second executable portion is adapted to formulate a passcode including the identified at least one element and the PIN in the predefined position with respect to the identified at least one element, and wherein the third executable portion is adapted to authenticate the client by identifying a match
5 between the generated passcode and the formulated passcode.

33. A system comprising:
an entity capable of sending, to a client, a set of at least one label identifying at least one element of a matrix, the matrix including a plurality of elements, each element
10 capable of being identified by a label, and wherein the entity is capable of receiving a response from the client formulated based upon the at least one element identified by the received set of at least one label.

34. A system according to Claim 33, wherein the entity is capable of sending a
15 set of at least one label, and receiving a formulated response a plurality of times, and wherein the entity is capable of sending each set of at least one label such that the sent set of at least one label differs from each previously sent set of at least one label.

35. A system according to Claim 33, wherein the entity comprises an
20 authenticator and the matrix comprises an authentication matrix, wherein the authenticator is capable of receiving a response comprising a passcode, and wherein the authenticator is capable of authenticating the client based upon the formulated passcode.

36. A system according to Claim 35, wherein the authenticator is capable of
25 communicating with a passcode generator, wherein the passcode generator is capable of generating a passcode based upon at least one element selected from the authentication matrix, wherein the authenticator is capable of sending a set of at least one label identifying the selected at least one element, and wherein the authenticator is capable of authenticating the client further based upon the generated passcode.

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37. A system according to Claim 36, wherein the authenticator includes a database capable of storing an authentication matrix, wherein the authenticator is capable of providing an authentication matrix to the client, wherein the passcode generator is capable of generating a passcode based upon at least one element selected from the authentication matrix stored in the database, and wherein the authenticator is capable of receiving a passcode formulated based upon at least one element of the authentication matrix provided to the client corresponding to the at least one element selected from the authentication matrix stored in the database.

38. A system according to Claim 37, wherein the database of the authenticator is capable of storing a plurality of authentication matrices, each authentication matrix associated with a different client, wherein the authenticator is capable of providing, to the client being authenticated, an authentication matrix associated with the respective client, and wherein the passcode generator is capable of generating a passcode based upon at least one element selected from the authentication matrix stored in the database and associated with the respective client.

39. A system according to Claim 38, wherein the authenticator is capable of receiving at least one piece of identifying information associated with the client being authenticated, and thereafter identifying, from the plurality of authentication matrices stored in the database, the authentication matrix associated with the client being authenticated based upon the at least one piece of identifying information, and wherein the passcode generator is capable of generating a passcode based upon at least one element selected from the identified authentication matrix.

40. A system according to Claim 36, wherein the passcode generator is capable of generating a passcode further based upon a personal identification number (PIN) associated with the client, and wherein the authenticator is capable of receiving a passcode formulated further based upon the PIN.

41. A system according to Claim 40, wherein the passcode generator is capable of generating a passcode including at least one element selected from the authentication matrix and the PIN in a predefined position with respect to the selected at least one element, wherein the authenticator is capable of receiving a passcode
5 formulated to include the identified at least one element and the PIN in the predefined position with respect to the identified at least one element, and wherein the authenticator is capable of authenticating the client by identifying a match between the generated passcode and the formulated passcode.

10 42. A system comprising:
a client capable of receiving a set of at least one label identifying at least one element of a matrix, the matrix including a plurality of elements, each element capable of being identified by a label, wherein the client is capable of formulating a response based upon the at least one element identified by the received set of at least one label.

15 43. A system according to Claim 42, wherein the client is capable of receiving the set of at least one label and formulating a response a plurality of times, and wherein each set of at least one label received by the client differs from each set of at least one label previously received by the client.

20 44. A system according to Claim 42, wherein the client is capable of receiving the set of at least one label identifying at least one element of an authentication matrix, and wherein the client is capable of formulating a response comprising a passcode such that the client is capable of being authenticated based upon the formulated passcode.

25 45. A system according to Claim 12, wherein the client is capable of receiving a set of at least one label identifying at least one element selected from the authentication matrix during generation of a passcode, and wherein the client is capable of formulating the passcode such that the client is capable of being authenticated further based upon the
30 generated passcode.

46. A system according to Claim 45, wherein the client is capable of being provided with an authentication matrix from an authenticator capable of storing an authentication matrix, wherein the client is capable of receiving a set of at least one label identifying at least one element selected from the authentication matrix stored by the authenticator, and wherein the client is capable of formulating a passcode based upon at least one element of the authentication matrix provided to the client corresponding to the at least one element selected from the authentication matrix stored by the authenticator.

47. A system according to Claim 46, wherein the client is capable of being provided with an authentication matrix associated with the respective client from an authenticator capable of storing a plurality of authentication matrices, each authentication matrix associated with a different client, and wherein the client is capable of receiving a set of at least one label identifying at least one element selected from the authentication matrix stored by the authenticator and associated with the respective client.

48. A system according to Claim 47, wherein the client is capable of sending the authenticator at least one piece of identifying information associated with the respective client such that the authenticator is capable of identifying, from the plurality of authentication matrices, the authentication matrix associated with the respective client based upon the at least one piece of identifying information, and wherein the client is capable of receiving a set of at least one label identifying at least one element selected from the identified authentication matrix.

49. A system according to Claim 45, wherein the client is capable of receiving a set of at least one label identifying at least one element selected from the authentication matrix during generation of a passcode based upon a personal identification number (PIN) associated with the client, and wherein the client is capable of formulating a passcode further based upon the PIN.

50. A system according to Claim 49, wherein the client is capable of receiving a set of at least one label identifying at least one element selected from the authentication

matrix during generation of a passcode including at least one element selected from the authentication matrix and the PIN in a predefined position with respect to the selected at least one element, wherein the client is capable of formulating a passcode including the identified at least one element and the PIN in the predefined position with respect to the
5 identified at least one element such that the client is capable of being authenticated by identifying a match between the generated passcode and the formulated passcode.

51. A method comprising:
receiving a set of at least one label identifying at least one element of a matrix, the
10 matrix including a plurality of elements, each element capable of being identified by a label; and
formulating a response based upon the at least one element identified by the received set of at least one label.

15 52. A method according to Claim 51, wherein receiving a set of at least one label and formulating a response occur a plurality of times, and wherein each received set of at least one label differs from each previously received set of at least one label.

53. A method according to Claim 51, wherein receiving a set of at least one
20 label comprises receiving a set of at least one label identifying at least one element of an authentication matrix, wherein formulating a response comprises formulating a passcode, and wherein the method further comprises:
authenticating the client based upon the formulated passcode.

25 54. A method according to Claim 53 further comprising:
generating a passcode based upon at least one element selected from the authentication matrix,
wherein receiving a set of at least one label comprises receiving a set of at least
one label identifying the selected at least one element, and
30 wherein authenticating the client comprises authenticating the client further based upon the generated passcode.

55. A method according to Claim 54 further comprising:
providing an authentication matrix to an authenticator, and providing an authentication matrix to the client,

5 wherein generating a passcode comprises generating a passcode based upon at least one element selected from the authentication matrix provided to the authenticator, and

wherein formulating a passcode comprises formulating a passcode based upon at least one element of the authentication matrix provided to the client corresponding to the
10 at least one element selected from the authentication matrix provided to the authenticator.

56. A method according to Claim 55, wherein providing an authentication matrix to an authenticator comprises providing a plurality of authentication matrices to an authenticator, each authentication matrix associated with a different client, wherein
15 providing an authentication matrix to the client comprises providing, to the client being authenticated, an authentication matrix associated with the respective client, and
wherein generating a passcode comprises generating a passcode based upon at least one element selected from the authentication matrix provided to the authenticator and associated with the respective client.

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57. A method according to Claim 56 further comprising:
receiving at least one piece of identifying information associated with the client being authenticated; and

identifying, from the plurality of authentication matrices, the authentication
25 matrix associated with the client being authenticated based upon the at least one piece of identifying information,

wherein generating a passcode comprises generating a passcode based upon at least one element selected from the identified authentication matrix.

30 58. A method according to Claim 54, wherein generating a passcode comprises generating a passcode further based upon a personal identification number

(PIN) associated with the client, and wherein formulating a passcode comprises formulating a passcode further based upon the PIN.

59. A method according to Claim 58, wherein generating a passcode
5 comprises generating a passcode including at least one element selected from the authentication matrix and the PIN in a predefined position with respect to the selected at least one element, wherein formulating a passcode comprises formulating a passcode including the identified at least one element and the PIN in the predefined position with respect to the identified at least one element, and wherein authenticating the client
10 comprises identifying a match between the generated passcode and the formulated passcode.

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